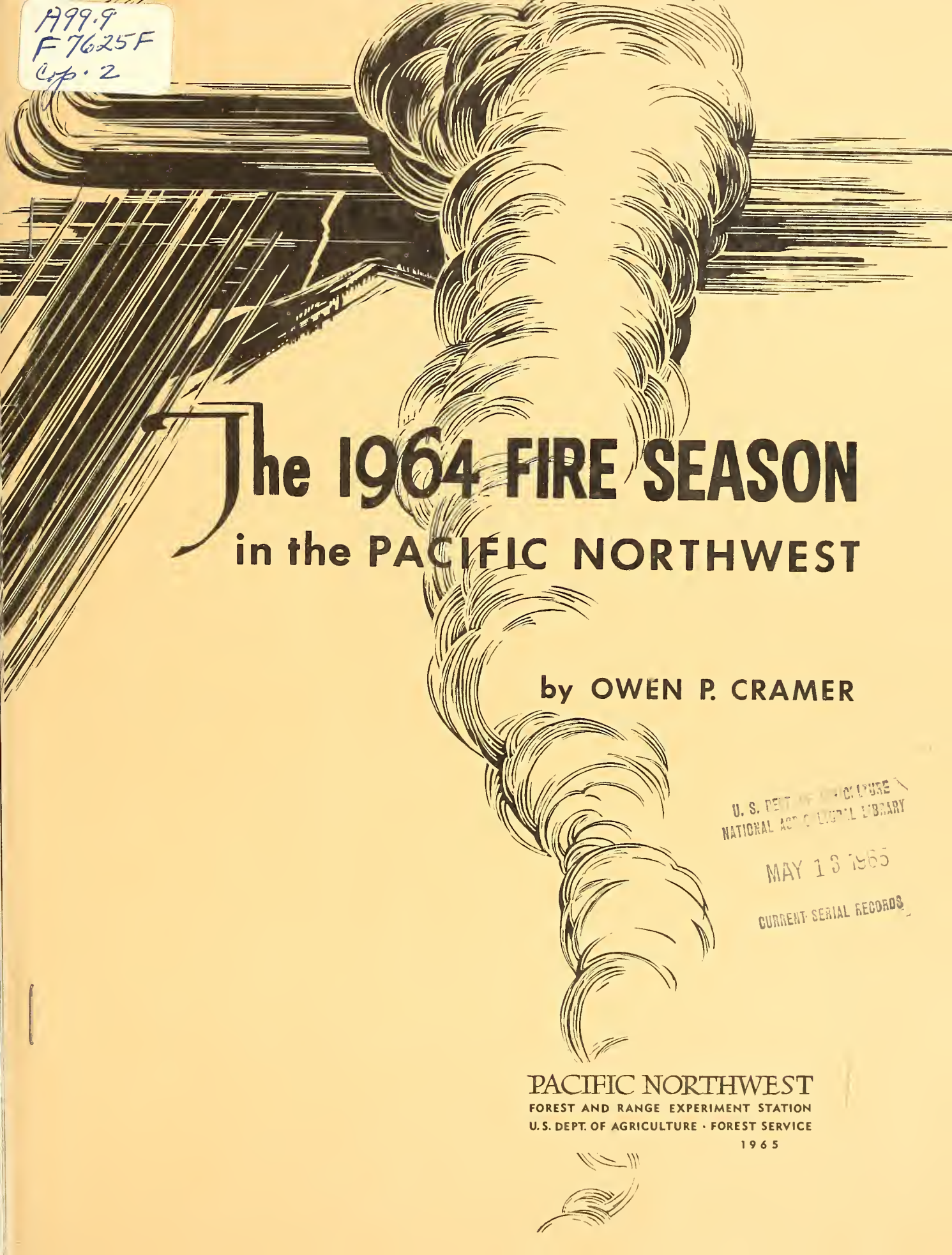


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The 1964 FIRE SEASON in the PACIFIC NORTHWEST

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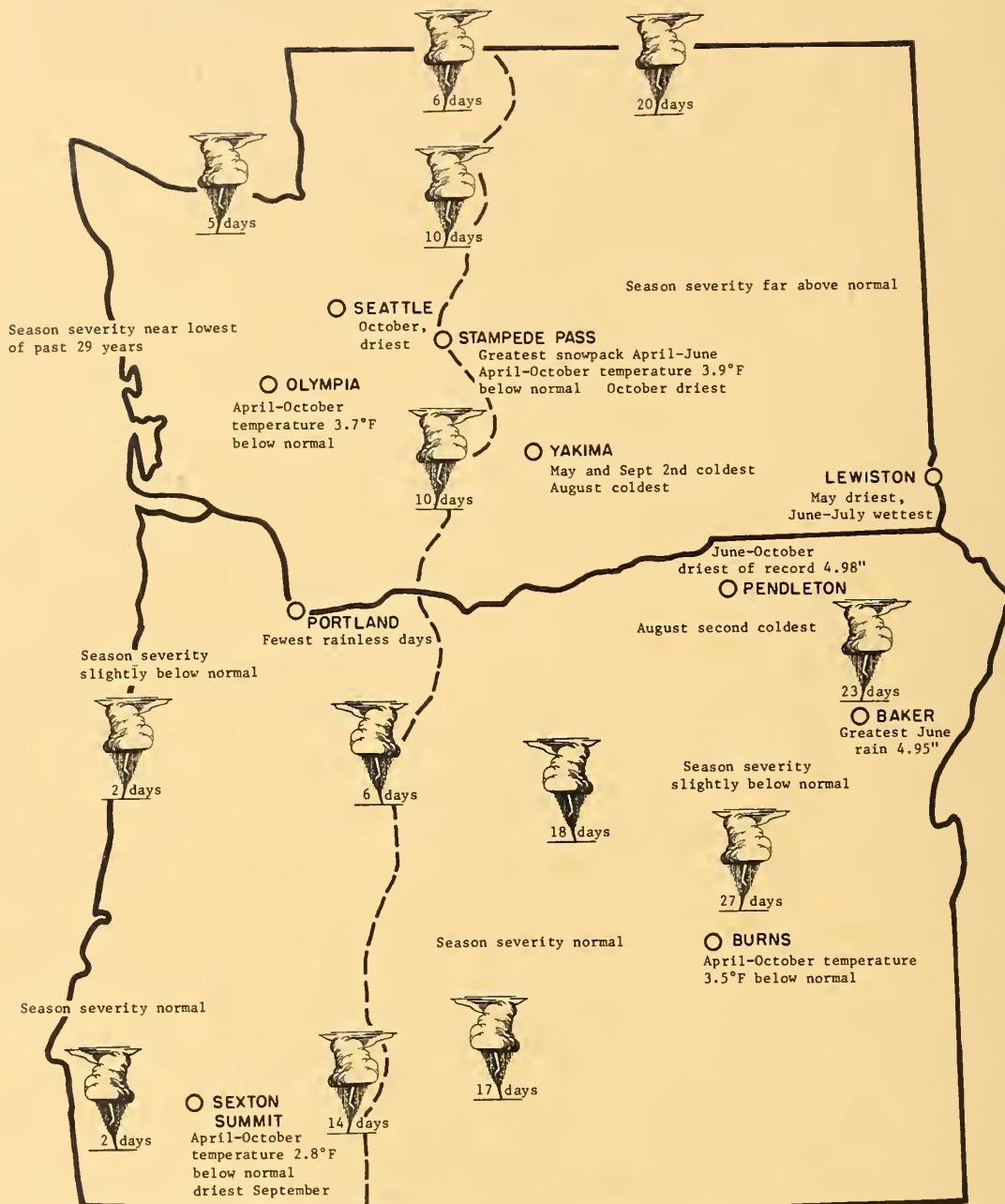


Figure 1.--1964 fire-weather highlights.

SUMMARY

The 1964 fire season varied greatly from one part of the Region to another. It was particularly unusual in Washington where western Washington season severity was equivalent to the lowest of record while the fire season in eastern Washington was among the driest of record. The fire season in the northern half of Oregon was slightly below normal while the southern half had a near normal season. The most unusual characteristic was the persisting below normal temperature throughout the region April through September. Thunderstorms were fewer than normal (fig. 1).

INTRODUCTION

Fire-Weather Indexes

Severity of weather conditions during the 1964 fire season is compared with that in previous years by the use of three indexes of weather conditions that are closely related to the ease with which fires start, the speed with which they spread, and the depth to which they burn. These weather indexes are: (1) total number of days when no rain fell, (2) average number of days since a wetting rain of one-fourth inch or more, and (3) National spread index, a rating of the combined effect of fine-fuel moisture and windspeed on rate of fire spread. High value means high severity in each index. General severity of the season is judged by considering all three indexes.

Each index is an average of separate measurements from widely distributed Weather Bureau and Federal Aviation Agency stations and one Air Force station (table 4). These valley and mountain stations have provided an unbroken record both for the current year and many previous years, permitting valid comparisons of the present with the past. The number of years for which indexes have been computed varies from one section of the Region to another and is different for each index, varying from 15 years of thunderstorm data in all sections to 43 years of rainfall indexes for western Oregon, and at least 17 years of spread index wherever computed.

As in previous years, total rainless days and number of days since a wetting rain are both calculated for the entire April-through-October period for all sections of the Region. The season for which National spread index has been computed varies between areas to correspond to the portion of the year in which fires regularly occur. Spread index has been computed only for those areas for which existing stations provide a reasonably good indication of weather over forest areas.

OUTLINES OF FIRE-SEASON WEATHER BY SECTION

Western Washington

General.--Second successive very wet fire season. Slightly less severe than 1963 and approximately equal to other extremely wet seasons of which none was appreciably less severe.

Rainfall indexes.--Total rainless days lowest in 26 years of record. Spacing of wetting rains second least to 1948 but similar to 1963 (table 1). Previous record for fewest summer rainless days (1948) surpassed by 3 days.

Spread index (southwest Washington only).--Equal to 1963 as the second lowest in 17 years of record, exceeded only by 1954 (table 2).

Thunderstorm days.--Slightly fewer than average and far less than 1963 (table 3)

General weather.--Average monthly temperatures below normal every month except October. Rainfall well below normal in April and May, normal or above in June, July, and August, and slightly below normal in September and October. No rainless periods longer than 8 days. Wetting rains well distributed throughout the season.

Western Oregon

General.--Slightly below normal severity northwest Oregon and normal severity in southwest Oregon. Generally more severe than 1963.

Rainfall indexes.--Both indexes close to normal and higher than 1963. Summer rainfall indexes below normal and total number of summer rainless days the lowest of a 43-year record at Portland.

Spread index.--Northwest Oregon, slightly higher than 1963, but the fourth lowest of 17 years.

Southwest Oregon, normal and slightly above 1963.

Thunderstorm days.--Considerably fewer than normal and far below 1963 storm frequency, but more than in 1962.

General weather.--Average monthly temperatures below normal except in October. Rainfall below normal in April, May, September, and October though individual rainy days were well distributed. June and August rainfall close to normal, and July rainfall generally exceeded normals by 50 to 100 percent. Rains of a quarter inch or more

scarce during the summer but lighter rains comparatively frequent. Autumn wetting rains ideally spaced for slash burning.

East-Central Washington

General --Among the driest seasons.

Rainfall indexes --Spacing of wetting rains second greatest to 1939, and number of rainless days well above average. Spring unusually dry with the second greatest number of rainless days. Summer and fall second greatest spacing of wetting rains beginning with 1939.

Thunderstorm days --Fewer than normal and the least since 1960.

General weather --Average monthly temperatures below normal in every month although only slightly below in October. Rainfall below normal in April, May, September, and October, but near normal or above in June, July, and August. First half of June only real rainy period.

Northeast Oregon

General --Severity slightly below normal.

Rainfall indexes --Spacing of wetting rains less than normal with near normal number of rainless days. Summer portion damp with closest spacing of wetting rains since 1941 and fewer than normal rainless days.

Thunderstorm days --Slightly below normal and fewer than 1963. The Malheur National Forest with 27, most in the Region.

Spread index --Slightly below normal and similar to 1963

General weather --Average monthly temperatures below normal every month except near normal in October. April and May rainfall far below normal but counteracted by above normal rain in most portions in June, July, and August. Rainfall below normal in September and October.

South-Central Oregon

General --Near normal severity.

Rainfall indexes.--Spacing of wetting rains slightly less than normal, but total rainless days slightly greater than normal. Summer average time since a wetting rain second lowest of record to 1952, with normal number of rainless days. Spacing of summer wetting rains at Redmond less in only 1947 and 1948. Fall spacing of wetting rains at Klamath Falls third greatest since 1939.

Spread index.--Normal and similar to 1963 (Redmond only).

Thunderstorm days.--Fewer than normal and considerably less than 1963.

General weather.--Average monthly temperatures below normal throughout season. Rainfall below normal in April and May, mostly above normal in June and August, well above normal in July, and less than half of normal in September and October. No rain observed at Klamath Falls September 2 to October 26, the driest part of the 1964 season in south-central Oregon.

Table 1.--Rainfall indexes for the 1964 fire season^{1/} with comparative
data for Oregon and Washington^{2/}

Station and index	:	:	:	:	Record before 1964 ^{3/}	
	Cur-	Pre-	10-year	:	Low	High
	rent	vious	average	:		
	year	year	(1954-63)	:		
	(1964)	(1963)	(1954-63)	:		
Western Washington:						
Average days since wetting rain	4/ 7.5	7.6	11.0		7.0 (1948)	28.9 (1951)
Total rainless days	117.3	127.7	134.0		122.7 (1941)	162.3 (1938)
Western Oregon:						
Average days since wetting rain	23.0	19.2	23.1		13.5 (1941)	48.8 (1932)
Total rainless days	156.8	145.0	155.6		139.5 (1948)	176.0 (1952)
East-central Washington:						
Average days since wetting rain	74.2	42.0	47.0		14.7 (1948)	38.5 (1939)
Total rainless days	188.5	177.0	180.7		164.5 (1948)	197.0 (1949)
Northeastern Oregon:						
Average days since wetting rain	30.9	31.7	35.8		18.1 (1948)	53.6 (1949)
Total rainless days	178.1	165.4	175.4		153.6 (1948)	190.0 (1949)
South-central Oregon:						
Average days since wetting rain	32.4	27.7	36.3		24.2 (1952)	61.3 (1960)
Total rainless days	183.0	162.7	179.9		162.7 (1963)	190.7 (1949)

^{1/} April 1 through October 31.

^{2/} Indexes based on observations at certain Weather Bureau and FAA stations (see table 4).

^{3/} See table 4 for exact periods of record.

^{4/} New low record.

Table 2.--The 1964 National spread index and comparative data
for five areas^{1/} of Oregon and Washington

Area, index, and season	:	:	:	:	Record before 1964 ^{2/}	
	: Cur-	: Pre-	:	:		
	: rent	: vious	: 10-year	:		
	: year	: year	: average	:		
	: (1964)	: (1963)	: (1954-63)	:	Low	High
	:	:	:	:	:	:
SW. Washington (July 1-Sept. 30):						
National spread index	29.7	29.7	37.7	26.2 (1954)	47.7	(1958)
NW. Oregon (June 1-Sept. 30):						
National spread index	43.8	40.0	48.2	38.4 (1954)	54.6	(1951)
SW. Oregon (June 1-Oct. 31):						
National spread index	47.0	45.4	47.2	35.8 (1953)	53.8	(1960)
Central Oregon (May 1-Oct. 31):						
National spread index	50.2	49.1	50.8	45.0 (1957)	61.4	(1949)
NE. Oregon (July 1-Oct. 31):						
National spread index	48.8	49.1	50.6	45.1 (1962)	55.5	(1956)

^{1/} Indexes based on averages of the 1500 P.s.t. observation on the highest 50-percent days for the following stations:

SW. Washington	SW. Oregon	NW. Oregon	Central Oregon	NE. Oregon
Seattle-Tacoma	Sexton Summit	Portland	Redmond	Pendleton
Stampede Pass	Medford	Eugene		Meacham
Toledo				

^{2/} Period of record all stations 1948-64.

Table 3. - Number of days with lightning storms on the National Forests between July 1 and September 15, 1964, compared with previous years^{1/}

Section	Cur-	Pre-	10-year	Record to 1964 ^{2/}	
	rent	vius	average	Low	High
	year	year	average		
	(1964)	(1963)	(1954-63)		
Western Washington:					
Average of Olympic, Mt. Baker, Gifford Pinchot, and Snoqualmie	7.8	19.2	8.9	2.5 (1954)	19.2 (1963)
Western Oregon:					
Average of Siuslaw, Mt. Hood, Willamette, Umpqua, Rogue, and Siskiyou	6.3	14.7	8.5	1.5 (1954)	15.8 (1956)
East-central Washington:					
Average of Okanogan and Wenatchee	14.0	33.0	16.4	2.0 (1959)	33.0 (1963)
Northeastern Oregon:					
Average of Umatilla, Ochoco, Wallowa-Whitman, and Malheur	19.2	26.2	21.5	7.8 (1959)	28.8 (1960)
South-central Oregon ^{3/} :					
Average of Deschutes, Fremont, and Winema	13.7	20.3	16.3	6.5 (1954)	22.5 (1956)

^{1/} Based on daily reports to U.S. Weather Bureau and on Ranger District field records (R6-5120-49).

^{2/} Period of record 1950-64.

^{3/} Based on average of Deschutes and Fremont prior to 1961.

Table 4. - Sources of data for rainfall indexes

Section and station	Elevation: in feet	Agency	Data used for		Period of computed record
			BI	Rainfall indexes	
Western Washington:					
Bellingham	150	FAA	no	yes	Burning index
Seattle-Tacoma Arpt.	400	Wea. Bur.	yes	no	1948-64. Rain-
Toledo	351	FAA	yes	yes	fall indexes
Stampede Pass	3,958	Wea. Bur.	yes	no	1936-64.
Hoquiam	14	FAA	no	yes	
Western Oregon:					
Portland	21	Wea. Bur.	yes	yes	Burning index
Eugene	361	Wea. Bur.	yes	yes	1948-64. Rain
Sexton Summit	3,336	Wea. Bur.	yes	no	indexes 1922-64
Medford	1,312	Wea. Bur.	yes	yes	except 1923 and
North Bend	11	FAA	no	yes	1927.
East-central Washington:					
Yakima	1,061	Wea. Bur.	no	yes	Burning index
Omak	1,228	Wea. Bur.	no	yes	not computed. Rain indexes 1939-64.
Northeastern Oregon:					
Pendleton	1,492	Wea. Bur.	yes	yes	Burning index
Meacham	4,050	Wea. Bur.	yes	no	computed 1948-64.
Redmond	3,075	FAA	yes	yes	Rain indexes
Burns	4,140	Wea. Bur.	no	yes	1939-64.
South-central Oregon:					
Redmond	3,075	FAA	yes	yes	Burning index
Klamath Falls	4,098	Air Force	no	yes	computed for
Lakeview	4,774	Wea. Bur.	no	yes	1948-64. Rain indexes 1949-64.

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